

ARCH A157: BIM MULTIDISCIPLINARY

Item	Value
Curriculum Committee Approval Date	12/04/2024
Top Code	020100 - Architecture and Architectural Technology
Units	2 Total Units
Hours	54 Total Hours (Lecture Hours 27; Lab Hours 27)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S)

Course Description

This course uses Building Information Modeling (BIM) with multidisciplinary applications (Structural, Mechanical, Electrical, and Plumbing) and project management tools to create an integrated 3-dimensional architectural model. PCs with Autodesk Revit and other software will be used and instruction will focus on coordinating one or more disciplines in a collaborative environment. ADVISORY: ARCH A156. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Students will use current BIM and related software to collaboratively develop the components of an architectural model and the related multidisciplinary systems (Structure, Mechanical, Electrical, Plumbing). Students will also use management and workflow software tools as appropriate to the project at a skilled professional level, as evaluated by the instructor.

Course Objectives

- 1. Use Building Information Modeling as a construction and design tool for one of the following disciplines: Structural / Mechanical / Electrical / Plumbing.
- 2. Use BIM software to coordinate one of the following models: Structural / Mechanical / Electrical / Plumbing with the architectural model.
- 3. Use the design features of BIM for one of the following models: Structural / Mechanical / Electrical / Plumbing.
- 4. Use BIM and related project management software for construction coordination and documentation of a multi-disciplinary project.
- 5. Have a basic understanding of how NavisWorks, BlueBeam and/or comparable software is used for construction administration and workflow of a multi-disciplinary project.

Lecture Content

Building Information Modeling (BIM) Review features and work flow of BIM Exploring the Architectural Model Editing a project Linking to other files Working with Structures Accessing the Structural BIM content Generating a structural model Editing and creating structural members Documenting process for structures Integrating with other models Working with Mechanical/Electrical/Plumbing (MEP) Accessing MEP BIM content Generating an MEP model Editing and creating MEP members Documenting process for MEP Integrating with other models Integrating multiple disciplines (Structures/MEP) Importing multiple files Families and content coordination Design Coordination of the models Documentation for construction NavisWorks (or similar BIM coordination software) Clash detection and tracking changes Construction take-offs and extracting materials surveys Cost Estimation formats Linking current cost information to the estimate Project time schedule development BlueBeam, Autodesk 360 (or similar BIM workflow software) AEC workflow and documentation collaboration Control and administrative tracking Distribution and markup tools Management and communication Project close out and transfer to facility manager

Lab Content

Building Information Modeling (BIM) Exercises Review features and work flow of BIM Exploring the Architectural Model Editing a project Linking to other files Working with Structures Generate a structural model Edit and create structural members Document process for structures Integrate with other models Working with Mechanical/Electrical/Plumbing (MEP) Access generate MEP BIM content Edit and create MEP members Integrate with other models Integrating multiple disciplines (Structures/MEP) Import multiple files Coordinate Families and content Prepare documents for construction NavisWorks Exercises Clash detection and track changes Construction take-offs and extract materials surveys Cost Estimation formats Link current cost information to the estimate Develop project time schedule Workflow Exercises (BlueBeam, Autodesk 360, similar) AEC workflow and documentation collaboration Control and administrative tracking Distribution and markup tools Management and communication Project close out and transfer to facility manager

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)
- Lab (04)
- DE Live Online Lab (04S)
- DE Online Lab (04X)

Instructional Techniques

Lecture and in-class drawing assignments, projects, quizzes, individual and small group activities and instruction.

Reading Assignments

Students will spend a minimum of one hour per week reading BIM software documentation as prescribed by instructor

Writing Assignments

Writing for this course includes minor notations and short professional descriptors. Critical thinking is reinforced in the act of designing and coordinating this project and set of drawings and collaboratively delivering an integrated design package.

Out-of-class Assignments

Students will spend a minimum of 2 hours per week completing BIM modeling, drawing, and management assignments

Demonstration of Critical Thinking

Critical thinking is reinforced in the act of designing and coordinating this project and set of drawings.

Required Writing, Problem Solving, Skills Demonstration

Writing for this course only includes minor notations and short professional descriptors.

Eligible Disciplines

Architecture: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience.

Other Resources

1. Instructor handouts and current software reference books and online tutorials as recommended by instructor.